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L3	5713	713/170 or 713/176 or 380/54 or 283/17 or 359/1 or 399/12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/08/18 22:23
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1 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research**

Publisher: IBM Press

Full text available: pdf(4.21 MB) Additional Information: full citation, abstract, references, index terms

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

2 Special issue: AI in engineering

D. Sriram, R. Joobbani

April 1985 **ACM SIGART Bulletin**, Issue 92

Publisher: ACM Press

Full text available: pdf(8.79 MB) Additional Information: full citation, abstract

The papers in this special issue were compiled from responses to the announcement in the July 1984 issue of the SIGART newsletter and notices posted over the ARPAnet. The interest being shown in this area is reflected in the sixty papers received from over six countries. About half the papers were received over the computer network.

3 Multiresolution storage and search in sensor networks

Deepak Ganesan, Ben Greenstein, Deborah Estrin, John Heidemann, Ramesh Govindan

August 2005 **ACM Transactions on Storage (TOS)**, Volume 1 Issue 3

Publisher: ACM Press

Full text available: pdf(1.55 MB) Additional Information: full citation, abstract, references, index terms

Wireless sensor networks enable dense sensing of the environment, offering unprecedented opportunities for observing the physical world. This article addresses two key challenges in wireless sensor networks: in-network storage and distributed search. The need for these techniques arises from the inability to provide persistent, centralized storage and querying in many sensor networks. Centralized storage requires multihop

transmission of sensor data to Internet gateways which can quickly drain b ...

Keywords: Wireless sensor networks, data aging, data storage, drill-down query, multiresolution storage, wavelet processing

4 Sensornet services: TSAR: a two tier sensor storage architecture using interval skip graphs

Peter Desnoyers, Deepak Ganesan, Prashant Shenoy

November 2005 **Proceedings of the 3rd international conference on Embedded networked sensor systems SenSys '05**

Publisher: ACM Press

Full text available: pdf(444.47 KB) Additional Information: full citation, abstract, references, index terms

Archival storage of sensor data is necessary for applications that query, mine, and analyze such data for interesting features and trends. We argue that existing storage systems are designed primarily for flat hierarchies of homogeneous sensor nodes and do not fully exploit the multi-tier nature of emerging sensor networks, where an application can comprise tens of tethered proxies, each managing tens to hundreds of untethered sensors. We present *TSAR,* a fundamentally different storage ar ...

Keywords: archival storage, indexing methods, wireless sensor networks

5 Fortran 8X draft

Loren P. Meissner

December 1989 **ACM SIGPLAN Fortran Forum**, Volume 8 Issue 4

Publisher: ACM Press

Full text available: pdf(21.36 MB) Additional Information: full citation, abstract, index terms

Standard Programming Language Fortran. This standard specifies the form and establishes the interpretation of programs expressed in the Fortran language. It consists of the specification of the language Fortran. No subsets are specified in this standard. The previous standard, commonly known as "FORTRAN 77", is entirely contained within this standard, known as "Fortran 8x". Therefore, any standard-conforming FORTRAN 77 program is standard conforming under this standard. New features can b ...

6 High dynamic range imaging

Paul Debevec, Erik Reinhard, Greg Ward, Sumanta Pattanaik

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes SIGGRAPH '04**

Publisher: ACM Press

Full text available: pdf(20.22 MB) Additional Information: full citation, abstract

Current display devices can display only a limited range of contrast and colors, which is one of the main reasons that most image acquisition, processing, and display techniques use no more than eight bits per color channel. This course outlines recent advances in high-dynamic-range imaging, from capture to display, that remove this restriction, thereby enabling images to represent the color gamut and dynamic range of the original scene rather than the limited subspace imposed by current monitor ...

7 SPOTS'06 session 4--new sensors and architectures: Address-event imagers for sensor networks: evaluation and modeling

Thiago Teixeira, Eugenio Culurciello, Joon Hyuk Park, Dimitrios Lymberopoulos, Andrew Barton-Sweeney, Andreas Savvides

April 2006 **Proceedings of the fifth international conference on Information**

processing in sensor networks IPSN '06

Publisher: ACM Press

Full text available: pdf(6.05 MB) Additional Information: full citation, abstract, references, index terms

Although imaging is an information-rich sensing modality, the use of cameras in sensor networks is very often prohibited by factors such as power, computation cost, storage, communication bandwidth and privacy. In this paper we consider information selective and privacy-preserving address-event imagers for sensor networks. Instead of providing full images with a high degree of redundancy, our efforts in the design of these imagers specialize on selecting a handful of features from a scene and ou ...

Keywords: address-event, camera sensor networks, imager sensor networks

8 MEDEA'05: Memory bandwidth optimization through stream descriptors

Abelardo López-Lagunas, Sek M. Chai

March 2006 **ACM SIGARCH Computer Architecture News**, Volume 34 Issue 1

Publisher: ACM Press

Full text available: pdf(217.17 KB) Additional Information: full citation, abstract, references

The memory subsystem for computer vision and image processing applications must sustain high memory bandwidth to keep processors busy. This paper advocates the use of stream descriptors, a mechanism that allows programmers to indicate data movement explicitly. Stream descriptors enable the compiler to organize memory transfers more efficiently by matching data movement to the capabilities of the underlying hardware. Stream descriptors are used in this paper on an image sensor interface to descri ...

9 OceanStore: an architecture for global-scale persistent storage

John Kubiatowicz, David Bindel, Yan Chen, Steven Czerwinski, Patrick Eaton, Dennis Geels, Ramakrishna Gummadi, Sean Rhea, Hakim Weatherspoon, Chris Wells, Ben Zhao

November 2000 **ACM SIGARCH Computer Architecture News , ACM SIGOPS Operating Systems Review , Proceedings of the ninth international conference on Architectural support for programming languages and operating systems ASPLOS-IX**, Volume 28 , 34 Issue 5 , 5

Publisher: ACM Press

Full text available: pdf(166.53 KB) Additional Information: full citation, abstract, references, citings, index terms

OceanStore is a utility infrastructure designed to span the globe and provide continuous access to persistent information. Since this infrastructure is comprised of untrusted servers, data is protected through redundancy and cryptographic techniques. To improve performance, data is allowed to be cached anywhere, anytime. Additionally, monitoring of usage patterns allows adaptation to regional outages and denial of service attacks; monitoring also enhances performance through pro-active movement ...

10 Conference abstracts

January 1977 **Proceedings of the 5th annual ACM computer science conference**

Publisher: ACM Press

Full text available: pdf(3.14 MB) Additional Information: full citation, abstract, index terms

One problem in computer program testing arises when errors are found and corrected after a portion of the tests have run properly. How can it be shown that a fix to one area of the code does not adversely affect the execution of another area? What is needed is a quantitative method for assuring that new program modifications do not introduce new errors into the code. This model considers the retest philosophy that every program instruction that could possibly be reached and tested from the ...

11 OceanStore: an architecture for global-scale persistent storage

John Kubiatowicz, David Bindel, Yan Chen, Steven Czerwinski, Patrick Eaton, Dennis Geels, Ramakrishan Gummadi, Sean Rhea, Hakim Weatherspoon, Westley Weimer, Chris Wells, Ben Zhao

November 2000 **ACM SIGPLAN Notices**, Volume 35 Issue 11

Publisher: ACM Press

Full text available: pdf(1.47 MB) Additional Information: full citation, abstract, references, index terms

OceanStore is a utility infrastructure designed to span the globe and provide continuous access to persistent information. Since this infrastructure is comprised of untrusted servers, data is protected through redundancy and cryptographic techniques. To improve performance, data is allowed to be cached anywhere, anytime. Additionally, monitoring of usage patterns allows adaptation to regional outages and denial of service attacks; monitoring also enhances performance through pro-active movement ...

12 Programming: A sensor network application construction kit (SNACK)

Ben Greenstein, Eddie Kohler, Deborah Estrin

November 2004 **Proceedings of the 2nd international conference on Embedded networked sensor systems**

Publisher: ACM Press

Full text available: pdf(214.69 KB) Additional Information: full citation, abstract, references, citings, index terms

We propose a new configuration language, component and service library, and compiler that make it easier to develop efficient sensor network applications. Our goal is the construction of smart application service libraries: high-level libraries that implement concepts like routing trees and periodic sensing, and that combine automatically into efficient programs. Important language features include flexible control over component sharing and transitive arrow connections, which let independent ...

Keywords: NesC, TinyOS, configuration languages, sensor networks

13 A Value Transmission Method for Abstract Data Types

Maurice P. Herlihy, Barbara Liskov

October 1982 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 4 Issue 4

Publisher: ACM Press

Full text available: pdf(1.63 MB) Additional Information: full citation, references, citings, index terms

14 PSoup: a system for streaming queries over streaming data

Sirish Chandrasekaran, Michael J. Franklin

August 2003 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 12 Issue 2

Publisher: Springer-Verlag New York, Inc.

Full text available: pdf(267.99 KB) Additional Information: full citation, abstract, index terms

Abstract.Recent work on querying data streams has focused on systems where newly arriving data is processed and continuously streamed to the user in real time. In many emerging applications, however, ad hoc queries and/or intermittent connectivity also require the processing of data that arrives prior to query submission or during a period of disconnection. For such applications, we have developed PSoup, a system that combines the processing of ad hoc and continuous queries by treating data and ...

Keywords: Disconnected operation, Query-data duality, Stream query processing

15 Designing computer systems with MEMS-based storage

Steven W. Schlosser, John Linwood Griffin, David F. Nagle, Gregory R. Ganger

November 2000 **ACM SIGOPS Operating Systems Review , ACM SIGARCH Computer Architecture News , Proceedings of the ninth international conference on Architectural support for programming languages and operating systems ASPLOS-IX**, Volume 34 , 28 Issue 5 , 5

Publisher: ACM Press

Full text available: pdf(439.06 KB) Additional Information: full citation, abstract, references, citings, index terms

For decades the RAM-to-disk memory hierarchy gap has plagued computer architects. An exciting new storage technology based on microelectromechanical systems (MEMS) is poised to fill a large portion of this performance gap, significantly reduce system power consumption, and enable many new applications. This paper explores the system-level implications of integrating MEMS-based storage into the memory hierarchy. Results show that standalone MEMS-based storage reduces I/O stall times by 4-74X over ...

16 Designing computer systems with MEMS-based storage

Steven W. Schlosser, John Linwood Griffin, David F. Nagle, Gregory R. Ganger

November 2000 **ACM SIGPLAN Notices**, Volume 35 Issue 11

Publisher: ACM Press

Full text available: pdf(439.06 KB) Additional Information: full citation, abstract, references, index terms

For decades the RAM-to-disk memory hierarchy gap has plagued computer architects. An exciting new storage technology based on microelectromechanical systems (MEMS) is poised to fill a large portion of this performance gap, significantly reduce system power consumption, and enable many new applications. This paper explores the system-level implications of integrating MEMS-based storage into the memory hierarchy. Results show that standalone MEMS-based storage reduces I/O stall times by 4--74X ove ...

17 Modeling for text compression

Timothy Bell, Ian H. Witten, John G. Cleary

December 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 4

Publisher: ACM Press

Full text available: pdf(3.54 MB) Additional Information: full citation, abstract, references, citings, index terms, review

The best schemes for text compression use large models to help them predict which characters will come next. The actual next characters are coded with respect to the prediction, resulting in compression of information. Models are best formed adaptively, based on the text seen so far. This paper surveys successful strategies for adaptive modeling that are suitable for use in practical text compression systems. The strategies fall into three main classes: finite-context modeling, i ...

18 Managing a large volume of design/manufacturing/test data in a chip and module factory

Vincent J. Freund

June 1984 **Proceedings of the 21st conference on Design automation**

Publisher: IEEE Press

Full text available: pdf(419.35 KB) Additional Information: full citation, abstract, references, index terms

In its highly automated East Fishkill semiconductor facility, IBM has exploited the "gate array" concept to its fullest in the support of computers designed using VLSI. IBM's Engineering Design System (which has been described in several papers in the past) in conjunction with the Direct Release System provides machine designers with a fast, controlled environment for designing and releasing chip part numbers into East Fishkill

and getting fast turnaround on newly designed chips ...

19 Level set and PDE methods for computer graphics

David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker
August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes SIGGRAPH '04**
Publisher: ACM Press
Full text available: pdf(17.07 MB) Additional Information: full citation, abstract, citings

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

20 Routing and MAC: Combs, needles, haystacks: balancing push and pull for discovery in large-scale sensor networks

Xin Liu, Qingfeng Huang, Ying Zhang
November 2004 **Proceedings of the 2nd international conference on Embedded networked sensor systems**
Publisher: ACM Press
Full text available: pdf(725.19 KB) Additional Information: full citation, abstract, references, index terms

In this paper we investigate efficient strategies for supporting on-demand information dissemination and gathering in large-scale vwireless sensor networks. In particular, we propose a "comb-needle" discovery support model resembling an ancient method: use a comb to help find a needle in sands or a haystack. The model combines push and pull for information dissemination and gathering. The push component features data duplication in a linear neighborhood of each node. The pull component featur ...

Keywords: data dissemination, pull, push, query, routing, sensor network

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